

**EPA's Narrative and Historical Context for our Input to the DSC-ISB**  
***Draft Water Quality Review Proposal***  
**(08 11 15)**

In 2011, the U.S. Environmental Protection Agency (EPA) issued an Advance Notice of Proposed Rulemaking for Water Quality Challenges in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (ANPR).<sup>1</sup> The ANPR summarized the status of aquatic species of concern in the Bay Delta Estuary, the current scientific and technical understanding of seven major stressors affecting those aquatic resources, and the status of the regulatory response to the dramatic decline in those resources. The seven stressors EPA considered of most significance included: ammonia, selenium, pesticides, contaminants of emerging concern, declining estuarine habitat, fragmented migratory corridors and wetlands loss.

As discussed in the ANPR, the regulatory response to water quality issues in the Bay Delta is complex. This is due in part to the nature of the problem and in part to the multi-layered and sometimes fragmented regulatory structure in California, where the task of identifying water quality goals and defining and implementing regulatory solutions is shared by the State Water Board and the nine Regional Water Quality Control Boards (Regional Water Boards), as well as between the water quality and water rights functions of the State Water Board.<sup>2</sup>

In 2012, EPA released a Bay Delta Action Plan<sup>3</sup> after assessing the effectiveness of current regulatory mechanisms designed to protect water quality in the Bay Delta and its tributaries. EPA's assessment concluded that Clean Water Act (CWA) programs were not adequately protecting aquatic resources of the Bay Delta, as evidenced by the pelagic organism decline (POD). That said, the Water Boards have initiated work on the most significant tasks and are making steady progress. Other agencies have also strengthened relevant regulatory programs. Most notably, the Department of Pesticide Regulation finalized regulations designed to prevent surface water contamination by pyrethroids in non-agricultural settings.

Together, the State Water Board and the Regional Water Boards are pursuing measures that will improve water quality and the overall health of the Bay Delta. For example, in amendments to California's draft Toxicity Plan, the State proposed numeric toxicity objectives which will more effectively identify and diagnose water quality problems caused by toxicants including pesticides. Furthermore, statewide policies are being developed to address: (a) nutrients (including guidance on developing numeric nutrient endpoints); (b) biocriteria (biological objectives that provide narrative and numeric benchmarks to describe conditions necessary to protect aquatic life beneficial uses); and (c) methylmercury (including water quality criteria based on fish-tissue concentrations that are protective of human health).

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<sup>1</sup> EPA's Water Quality Challenges in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary (ANPR; 2011); [http://www2.epa.gov/sites/production/files/documents/baydeltaanpr-fr\\_unabridged.pdf](http://www2.epa.gov/sites/production/files/documents/baydeltaanpr-fr_unabridged.pdf)

<sup>2</sup> EPA is not criticizing the State for this complex regulatory structure. Under the CWA's federalism concept, EPA respects how each State organizes its various water quality functions, as long as the goals of the CWA are attained.

<sup>3</sup> EPA's Bay Delta Action Plan (2012); <http://www2.epa.gov/sfbay-delta/bay-delta-action-plan>

In California, pesticides registered by EPA under (Federal Insecticide Rodenticide and Fungicide Act) FIFRA have been found to cause aquatic toxicity and water quality impairments, even though they are applied in full compliance with FIFRA requirements. Data regarding these impacts is essential to a more thorough evaluation during the pesticide Registration Review process which requires that each registered pesticide be reviewed every 15 years by EPA's Office of Pesticide Programs (OPP).

Aquatic toxicity caused by pesticides is one of the most common causes of water quality impairment in California and in the Bay Delta.<sup>4</sup> Toxicity to algae, invertebrates, and fish caused by pesticides has been observed and documented in the Bay Delta and its tributaries for twenty-five years.<sup>5</sup> All of the water bodies in the Bay Delta are on the SWRCB 2010 List of Impaired Waterbodies due to the impairments to aquatic life beneficial uses caused by diazinon, chlorpyrifos, pyrethroids, and/or legacy pesticides.

Pesticides are transported into the Bay Delta through urban and agricultural runoff, wastewater treatment plant discharges, and atmospheric deposition. Urban runoff includes wet- and dry-weather runoff<sup>6</sup> that flows over urban landscapes<sup>7</sup> and is discharged either directly into streams and rivers (nonpoint sources) or moves into storm sewer pipes (point sources) before being discharged into rivers and streams. Many contaminants, including pesticides, are found in urban runoff. Agricultural runoff includes precipitation and irrigation water that flows over agricultural fields directly into rivers and streams or into irrigation return flow systems (channels or pipes) before joining rivers and streams. Agricultural runoff is considered nonpoint source water pollution. Pesticides and fertilizers (nutrients) are common contaminants in agricultural runoff. Analysis of pesticide sales and use data from the California Department of Pesticide Regulation (DPR) estimated that urban pesticide use could have been at least 50% of total statewide use in 2006.<sup>8</sup>

In 2008, in response to steep declines in the abundance and survival of pelagic fishes, the State Water Board, with the Central Valley and San Francisco Bay Regional Water Boards, adopted a five-year Strategic Workplan<sup>9</sup> targeting their collective efforts towards a suite of priority activities to help address the ecological crisis. Key steps were taken toward developing a Delta Regional Monitoring Program (RMP)<sup>10</sup>, including publishing the first *Pulse of the Delta* report.

<sup>4</sup> SWRCB, 2010 INTEGRATED REPORT CLEAN WATER ACT SECTIONS 303(D) AND 305(B) (Apr. 19, 2010); <http://www.waterboards.ca.gov/waterissues/programs/tmdl/integrated2010.shtml>.

<sup>5</sup> FOE & CONNOR, STAFF REPORT CENT. VALLEY REG'L WATER QUALITY CONTROL BD., 1989 RICE SEASON TOXICITY MONITORING RESULTS (1991); <http://www.calwater.ca.gov/AdminRecord/C-029766.pdf>.

<sup>6</sup> Dry-weather flows include sprinklers, car washing, flushing drinking water systems and pools, sidewalk washing.

<sup>7</sup> Urban landscapes refer to areas with high impervious surface coverage and suburban/exurban areas with low density commercial and residential areas, but not to agricultural and rural residential/"ranchette" areas.

<sup>8</sup> URBAN PESTICIDE POLLUTION PREVENTION PROJECT, PESTICIDES OF INTEREST FOR URBAN SURFACE WATER QUALITY, URBAN PESTICIDES USE TRENDS ANNUAL REPORT (2008); <http://www.up3project.org/documents/UP3UseTrendsReport2008.pdf>.

<sup>9</sup> STATE WATER RES. CONTROL BD., STRATEGIC WORKPLAN FOR ACTIVITIES IN THE SAN FRANCISCO BAY/SACRAMENTO-SAN JOAQUIN DELTA ESTUARY (July 2008); [http://www.swrcb.ca.gov/waterrights/water\\_issues/programs/bay\\_delta/strategic\\_plan/docs/baydelta\\_workplan\\_final.pdf](http://www.swrcb.ca.gov/waterrights/water_issues/programs/bay_delta/strategic_plan/docs/baydelta_workplan_final.pdf) (Last visited 06/26/12).

<sup>10</sup> Delta Regional Monitoring Program;

[http://www.swrcb.ca.gov/rwqcb5/water\\_issues/delta\\_water\\_quality/comprehensive\\_monitoring\\_program/index.shtml](http://www.swrcb.ca.gov/rwqcb5/water_issues/delta_water_quality/comprehensive_monitoring_program/index.shtml)

Today, in 2015, stakeholders involved in the Steering Committee and the Technical Advisory Committee of the Delta RMP include representatives from State and federal agencies (Central Valley Regional Water Board, CA Department of Pesticide Regulation, USEPA, USGS), POTWs/sanitation districts, municipal stormwater programs, irrigated agriculture, water supply agencies, drinking water utilities, and interagency coordinated monitoring programs (IEP). Recent milestones include the commencement of monitoring for 'current use' pesticides and the approval of the 2015/2016 workplan and budget.

The scientific community has not identified any single stressor as primarily responsible for diminishing fish populations. Instead, scientists on the Delta Stewardship Council's Independent Science Board, the Interagency Ecological Program, and the National Research Council described contaminant and habitat stressors in the Bay Delta as interactive and highly dynamic. Informed by these experts, EPA concluded that, from the perspective of the Clean Water Act, updating and implementing the estuarine habitat water quality standard in the Bay-Delta Water Quality Control Plan (Bay Delta WQCP) is the most critical action for protecting aquatic life in the Bay Delta ecosystem.

Over the last decade, there has been much regulatory activity related to contaminant stressors, including pesticides, selenium, mercury, and ammonia. By contrast, the estuarine habitat water quality standard has not been updated for 20 years. Flow is a primary driver of physical habitat conditions, including turbidity, temperature, dissolved oxygen, and nutrient loading. In addition, the impacts of contaminant stressors are significantly altered by flow, as flows determine residence time, concentrations of contaminants, exposure duration and the salinity, temperature, and turbidity conditions that alter the chemistry and biological availability of contaminants.